Press Fittings
Plumbing & Heating

Products for the built environment

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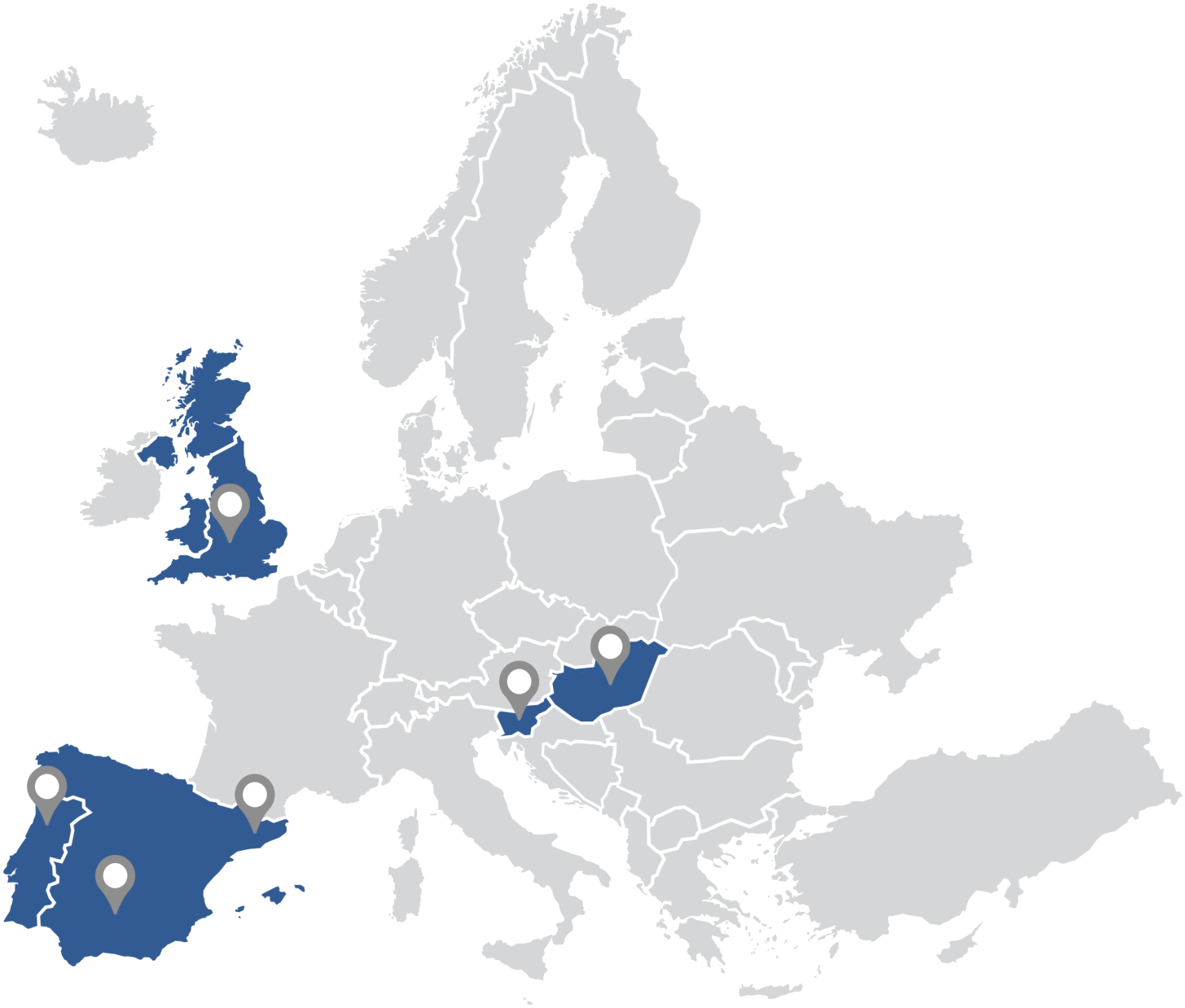


Equal Straight Connector

Product Code	Product Description	Diameter
01-TPF-01-S1616	Equal Straight Connector	16 x 16mm
02-TPF-01-S2020	Equal Straight Connector	20 x 20mm
03-TPF-01-S2525	Equal Straight Connector	25 x 25mm
04-TPF-01-S3232	Equal Straight Connector	32 x 32mm

Unequal Straight Connector

Product Code	Product Description	Diameter
05-TPF-02-S2016	Unequal Straight Connector	20 x 16mm
06-TPF-02-S2516	Unequal Straight Connector	25 x 16mm
07-TPF-02-S2520	Unequal Straight Connector	25 x 20mm
08-TPF-02-S3216	Unequal Straight Connector	32 x 16mm
09-TPF-02-S3220	Unequal Straight Connector	32 x 20mm
10-TPF-02-S3225	Unequal Straight Connector	32 x 25mm

Male Straight Connector

Product Code	Product Description	Diameter
11-TPF-03-S1612M	Male Straight Connector	16mm x 1/2" M
12-TPF-03-S1634M	Male Straight Connector	16mm x 3/4" M
13-TPF-03-S2012M	Male Straight Connector	20mm x 1/2" M
14-TPF-03-S2034M	Male Straight Connector	20mm x 3/4" M
15-TPF-03-S2512M	Male Straight Connector	25mm x 1/2" M
16-TPF-03-S2534M	Male Straight Connector	25mm x 3/4" M
17-TPF-03-S2511M	Male Straight Connector	25mm x 1" M
18-TPF-03-S3234M	Male Straight Connector	32mm x 3/4" M
19-TPF-03-S3211M	Male Straight Connector	32mm x 1" M
20-TPF-03-S32114M	Male Straight Connector	32mm x 1-1/4" M

Female Straight Connector

Product Code	Product Description	Diameter
21-TPF-04-S1612F	Female Straight Connector	16mm x 1/2" F
22-TPF-04-S1634F	Female Straight Connector	16mm x 3/4" F
23-TPF-04-S2012F	Female Straight Connector	20mm x 1/2" F
24-TPF-04-S2034F	Female Straight Connector	20mm x 3/4" F
25-TPF-04-S2534F	Female Straight Connector	25mm x 3/4" F
26-TPF-04-S2511F	Female Straight Connector	25mm x 1" F
27-TPF-04-S3234F	Female Straight Connector	32mm x 3/4" F
28-TPF-04-S3211F	Female Straight Connector	32mm x 1" F

Swivel Female Connector

Product Code	Product Description	Diameter
29-TPF-05-1612F	Swivel Female Connector	16mm x 1/2" F
32-TPF-05-2012F	Swivel Female Connector	20mm x 1/2" F
30-TPF-05-2034F	Swivel Female Connector	20mm x 3/4" F
31-TPF-05-2534F	Swivel Female Connector	25mm x 3/4" F
33-TPF-05-2511F	Swivel Female Connector	25mm x 1" F

90° Equal Elbow

Product Code	Product Description	Diameter
34-TPF-06-L1616	90° Equal Elbow	16 x 16mm
35-TPF-06-L2020	90° Equal Elbow	20 x 20mm
36-TPF-06-L2525	90° Equal Elbow	25 x 25mm
37-TPF-06-L3232	90° Equal Elbow	32 x 32mm

Female Elbow

Product Code	Product Description	Diameter
38-TPF-07-L1612F	Female Elbow	16mm x 1/2" F
39-TPF-07-L1634F	Female Elbow	16mm x 3/4" F
40-TPF-07-L2012F	Female Elbow	20mm x 1/2" F
41-TPF-07-L2034F	Female Elbow	20mm x 3/4" F
42-TPF-07-L2534F	Female Elbow	25mm x 3/4" F
43-TPF-07-L2511F	Female Elbow	25mm x 1" F
44-TPF-07-L3211F	Female Elbow	32mm x 1" F

Male Elbow

Product Code	Product Description	Diameter
45-TPF-08-L1612M	Male Elbow	16mm x 1/2" M
46-TPF-08-L2012M	Male Elbow	20mm x 1/2" M
47-TPF-08-L2034M	Male Elbow	20mm x 3/4" M
48-TPF-08-L2534M	Male Elbow	25mm x 3/4" M
49-TPF-08-L3211M	Male Elbow	32mm x 1" M

Female Swivel Elbow

Product Code	Product Description	Diameter
50-TPF-09-1612F	Female Swivel Elbow	16mm x 1/2"
51-TPF-09-2034F	Female Swivel Elbow	20mm x 3/4"

Equal Tee Union

Product Code	Product Description	Diameter
52-TPF-10-T161616	Equal Tee Union	16 x 16 x 16mm
53-TPF-10-T202020	Equal Tee Union	20 x 20 x 20mm
54-TPF-10-T252525	Equal Tee Union	25 x 25 x 25mm
55-TPF-10-T323232	Equal Tee Union	32 x 32 x 32mm

Unequal Tee

Product Code	Product Description	Diameter
56-TPF-11-T162016	Unequal Tee	16 x 20 x 16mm
57-TPF-11-T201616	Unequal Tee	20 x 16 x 16mm
58-TPF-11-T201620	Unequal Tee	20 x 16 x 20mm
67-TPF-11-T202016	Unequal Tee	20 x 20 x 16mm
61-TPF-11-T251616	Unequal Tee	25 x 16 x 16mm
68-TPF-11-T251620	Unequal Tee	25 x 16 x 20mm
59-TPF-11-T251625	Unequal Tee	25 x 16 x 25mm
69-TPF-11-T252016	Unequal Tee	25 x 20 x 16mm
62-TPF-11-T252020	Unequal Tee	25 x 20 x 20mm
63-TPF-11-T252025	Unequal Tee	25 x 20 x 25mm
60-TPF-11-T252516	Unequal Tee	25 x 25 x 16mm
70-TPF-11-T252520	Unequal Tee	25 x 25 x 20mm
71-TPF-11-T321625	Unequal Tee	32 x 16 x 25mm
64-TPF-11-T321632	Unequal Tee	32 x 16 x 32mm
65-TPF-11-T322032	Unequal Tee	32 x 20 x 32mm
72-TPF-11-T322520	Unequal Tee	32 x 25 x 20mm
66-TPF-11-T322525	Unequal Tee	32 x 25 x 25mm
73-TPF-11-T322532	Unequal Tee	32 x 25 x 32mm
74-TPF-11-T323225	Unequal Tee	32 x 32 x 25mm

Female Tee Union

Product Code	Product Description	Diameter
76-TPF-12-T2012F20	Female Tee Union	20mm x 1/2" x 20mm
75-TPF-12-T2512F25	Female Tee Union	25mm x 1/2" x 25mm
77-TPF-12-T3212F32	Female Tee Union	32mm x 1/2" x 32mm

Hose Plate Female

Product Code	Product Description	Diameter
78-TPF-13-T1615	Hose Plate Female	16mm x 1/2" F

Male Elbow with Fixing Plate

Product Code	Product Description	Diameter
79-TPF-14-1612M	Male Elbow with Fixing Plate	16mm x 1/2"
80-TPF-14-1634M	Male Elbow with Fixing Plate	16mm x 3/4"
81-TPF-14-2034M	Male Elbow with Fixing Plate	20mm x 1/2"

Female Elbow with Fixing Plate

Product Code	Product Description	Diameter
82-TPF-15-1612F	Female Elbow with Fixing Plate	16mm x 1/2" F
84-TPF-15-1634F	Female Elbow with Fixing Plate	16mm x 3/4" F
83-TPF-15-2012F	Female Elbow with Fixing Plate	20mm x 1/2" F
85-TPF-15-2034F	Female Elbow with Fixing Plate	20mm x 3/4" F

End Cap

Product Code	Product Description	Diameter
86-TPF-16-16	End Cap	16mm
87-TPF-16-20	End Cap	20mm
88-TPF-16-25	End Cap	25mm
89-TPF-16-32	End Cap	32mm

Copper Adapter

Product Code	Product Description	Diameter
90-TPF-17-1615	Copper Adapter	16 x 15mm Cu
91-TPF-17-2015	Copper Adapter	20 x 15mm Cu
92-TPF-17-2022	Copper Adapter	20 x 22mm Cu
93-TPF-17-2522	Copper Adapter	25 x 22mm Cu
94-TPF-17-2528	Copper Adapter	25 x 28mm Cu
95-TPF-17-3228	Copper Adapter	32 x 28mm Cu

Radiator Elbow

Product Code	Product Description	Diameter
96-TPF-18-L1615300	Radiator Elbow	16 x 15 x 300mm
97-TPF-18B-L1615150	Radiator Elbow	16 x 15 x 150mm

Female Tap Connector

Product Code	Product Description	Diameter
98-TPF-19-1612F	Female Tap Connector	16mm x 1/2" F
99-TPF-19-1634F	Female Tap Connector	16mm x 3/4" F

Straight Compression Connector

Product Code	Product Description	Diameter
100-TPF-20-1615	Straight Compression Connector	16 x 15mm
101-TPF-20-2015	Straight Compression Connector	20 x 15mm
102-TPF-20-2022	Straight Compression Connector	20 x 22mm
103-TPF-20-2522	Straight Compression Connector	25 x 22mm
104-TPF-20-2528	Straight Compression Connector	25 x 28mm
105-TPF-20-3228	Straight Compression Connector	32 x 28mm

MLCP Press Fitting

Press-fittings are specifically designed for use with Multilayer pipes, forming a press-fit system that eliminates the need for hot works. This innovative jointing solution has gained widespread popularity due to its:

· Ease of Installation: Simplifies and accelerates the assembly process.
· Exceptional Performance: Capable of withstanding high working temperatures and pressures, making it ideal for demanding applications.

Each joint is formed using a Press Jaw, tailored to match the diameter of the fitting. The Press Jaw compresses a durable stainless steel sleeve, securely fastening the pipe to the fitting core. The joint's hydraulic and mechanical sealing is achieved through the unique profile of the fitting combined with a triple O-ring system.

Once pressed, the fitting delivers a secure, high-strength joint with outstanding long-term durability.

Construction Details

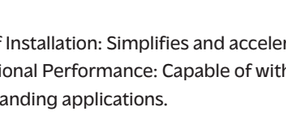
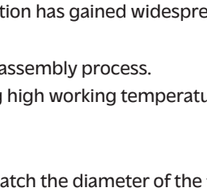
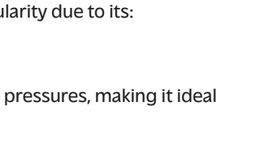
The press-fitting system is engineered with precision, incorporating the following key components:

Stainless Steel Sleeve:

· Attached to the fitting with a black plastic ring for seamless integration.
· Marked with the fitting diameter for quick and easy identification.

Black Plastic Ring:
1. Corrosion Protection: Prevents dielectric contact between the aluminum layer of the pipe and the brass body of the fitting, minimizing corrosion risks.
2. Insertion Verification: Includes sight holes to confirm the pipe is fully inserted into the fitting.
3. Precise Jaw Placement: Guides the correct positioning of the Press Jaw around the fitting.
4. Sleeve Fixation: Secures the stainless steel sleeve firmly to the fitting.

This advanced design ensures robust, reliable, and easy-to-install joints that meet the highest standards of performance and durability, making it a trusted solution for modern piping systems.

<table>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>1. Cut the pipe at a 90° angle</td><td>2. Bevel the cut end of the pipe</td><td>3. Check to ensure there are no burrs</td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>4. Insert the pipe into the fitting and check that the pipe is visible in each of the 3 viewing windows</td><td>5. Using a standard 'U', 'TH' or 'H' profile press jaw and press tool, make the connection</td><td>6. Joint complete</td></tr>
</table>

Wide Jaw Range
Fits multiple pressing jaw profiles: U, TH. H
Cost effective and practical.

Increased Inner Bore
Reducing the pressure loss and flow resistance.

Flanging Design
Easy pipe insertion without calibration.

Leak Check
Inadequate installation will result in a leak which is easily identifiable.

Visual Window
Offers clear vision of the pipe to check for a proper installation.

Triple O-Ring Seal
Offers clear vision of the pipe to check for a proper installation.

Installation Guide

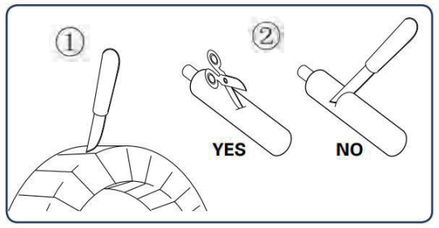
All installation operations must be carried out at temperatures above -10°C and below 45°C to avoid any possible damage to the materials.

In case of temperatures below 0°C, store the materials (pipes and fittings) at a higher temperature before use.

Removal of packaging from the pipe

1. Pay attention not to damage the pipe when removing the packaging tape from the roll.

2. For insulated pipe, make sure you do not cut into insulating sheath.

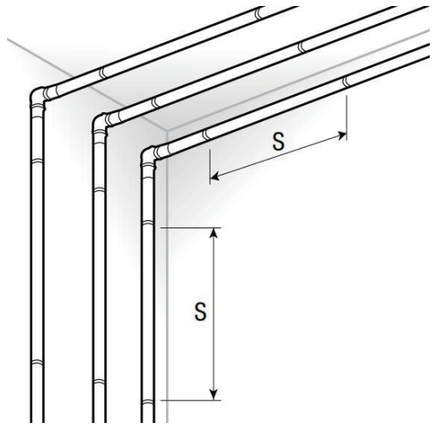


Surface Mounted Installation

In surface mounted installations, in false ceilings, in the gaps of dry wall systems (e.g. plasterboard) and in shafts, the pipes must be adequately secured with suitable collars placed at a distance of no more than the value shown in the table below.

Maximum distance "S" for bracketing surface mounted pipes:

Pipe dimension	Maximum Distance (S) for bracketing (cm)
16 x 2	100
20 x 2	125
25 x 2	150
32 x 3	200



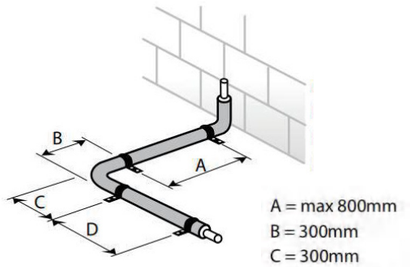
Surface Embedded Installation

In surface embedded installations, the pipes must be suitably secured with ties and there must be a minimum distance between them of 80 cm on straight lengths, and placed 30 cm before and after each bend.

For this type of installation it is preferable to lay insulated pipe that has a foam sheath covering or pass the pipe through flexible tubing.

Press fittings: in laying concealed piping, the press fittings must be protected from corrosion that can result from contact with chemicals contained in plasters and mortars.

It is possible to use boxing, adhesive tapes specifically adapted for such applications, or coverings in an expanded plastic material that has been adequately sealed.



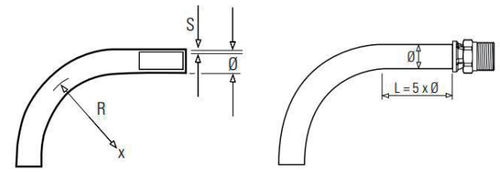
Minimum Radius of Bends

The bending of pipes must be carried out in accordance with the minimum values provided by the following:

Pipe dimension (Ø x S)	Minimum radius of bend R	Minimum radius of bend R with spring pipe bender	Minimum radius of bend R with hydraulic bender
16 x 2	5 x Ø	3 x Ø	
20 x 2	5 x Ø	3 x Ø	
25 x 2	8 x Ø	4 x Ø	4 x Ø
32 x 3			4 x Ø

It is preferable to use elbow unions to form curves on pipes with a diameter greater than 26mm.

In bending the pipe, you must also avoid putting pressure on the unions already installed and the distance between a union and the beginning of the bend must be greater than 5xØ, where Ø is the external diameter of the pipe.



Thermal Expansion

During the installation phase, pay particular attention to thermal expansion that can particularly affect multilayer pipes.

The elongation a pipe undergoes as a result of a variation in temperature can be calculated with the following formula:

$\Delta L = \alpha \times L \times \Delta T$
where:
α is the coefficient of linear expansion: 0.026 mm/m K for insulated pipes;
L is the initial length of the pipe (m);
ΔT is the temperature difference (K).

Example:

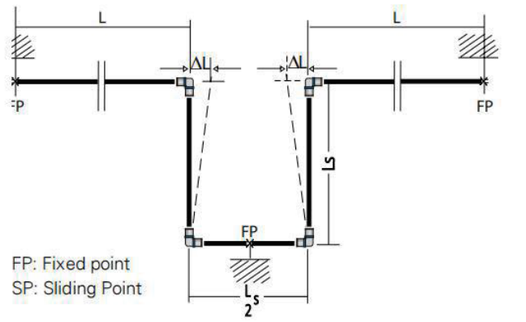
Length of pipe: 10 m
Temperature difference: 50 K
L = 0.026 x 10 x 50 = 13.0 mm

L = Length (m)
ΔT = Temperature difference (K)
ΔL = Longitudinal expansion (mm)

ΔT	10	20	30	40	50	60	70
L	Δ L						
0.1	0.026	0.052	0.078	0.104	0.130	0.156	0.182
0.2	0.052	0.104	0.156	0.208	0.260	0.312	0.364
0.3	0.078	0.156	0.234	0.312	0.390	0.468	0.546
0.4	0.104	0.208	0.312	0.416	0.520	0.624	0.728
0.5	0.130	0.260	0.390	0.520	0.650	0.780	0.910
0.6	0.156	0.312	0.468	0.624	0.780	0.936	1.092
0.7	0.182	0.364	0.546	0.728	1.910	1.092	1.274
0.8	0.208	0.416	0.624	0.832	1.040	1.248	1.456
0.9	0.234	0.468	0.702	0.936	1.170	1.404	1.638
1.0	0.260	0.520	0.780	1.040	1.300	1.560	1.820
2.0	0.520	1.040	1.560	2.080	2.600	3.120	3.640
3.0	0.780	1.560	2.340	3.120	3.900	4.680	5.460
4.0	1.040	2.080	3.120	4.160	5.200	6.240	7.280
5.0	1.300	2.600	3.900	5.200	6.500	7.800	9.100
6.0	1.560	3.120	4.680	6.240	7.800	9.360	10.920
7.0	1.820	3.640	5.460	7.280	9.100	10.920	12.740
8.0	2.080	4.160	6.240	8.830	10.400	12.480	14.560
9.0	2.340	4.680	7.020	9.360	11.700	14.040	16.380
10.0	2.600	5.200	7.800	10.400	13.000	15.600	18.200

Pipe Support

In surface mounted installations or installations in false ceilings and shafts, longitudinal thermal expansion can be compensated for through careful arrangement of fixed and sliding brackets (points), depending on the type of installation, thus providing suitable thermal expansion compensators.



Where:

Ls = C x √ (Ø x ΔL)

Ls = Length of compensator (mm)

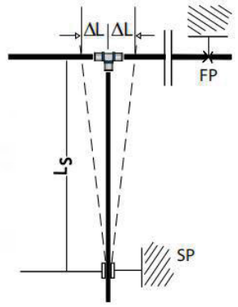
Ø = External diameter of pipe (mm)

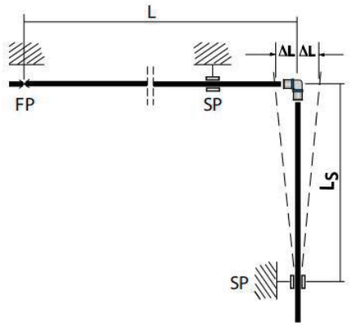
C = Material constant
(for insulated pipes C=33)

With

ΔL = 15,6 mm (previous example),
Ø = 26 mm

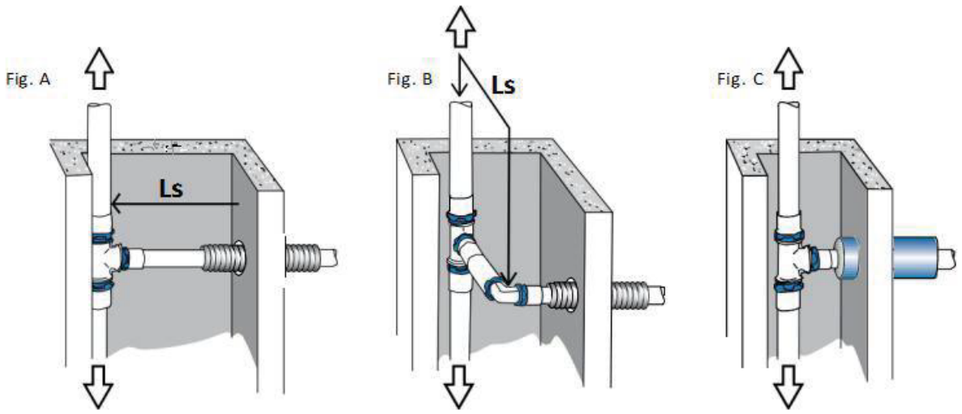
the result will be:
Ls = 33 x √ (26 x 15,6) = 665 mm





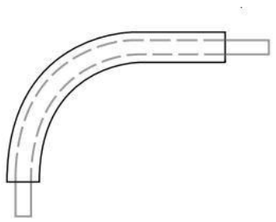
In order to guarantee the free movement of pipes in an installation inside a vertical shaft with horizontal branches, the branches must have a minimum free length Ls and the passage through the side wall of the shaft should be free and the pipe protected with a sheath (Fig. A and B).

In case the size of the shaft doesn't allow for a compensator of length Ls, the hole in the side wall should be increased in size and at the same time the tube should be protected with an insulating sheath of thickness S equal to or greater than 1.5x ΔL (Fig. C).



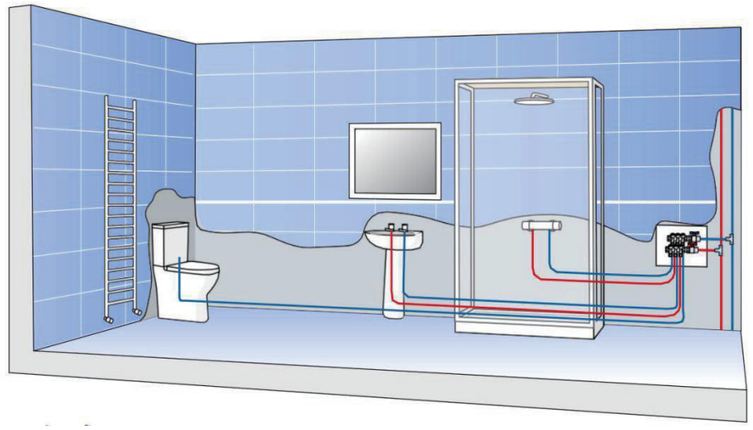
Where pipes are concealed or embedded in screed (laid in the floor), thermal expansion can be compensated for by creating an insulated curve at least every 10m (for example with an insulating foam sheath or by passing the pipe through flexible tubing).

Note: Where the pipes are being used in radiant circuits (spiral or serpentine for underfloor heating/cooling), these guidelines do not apply.

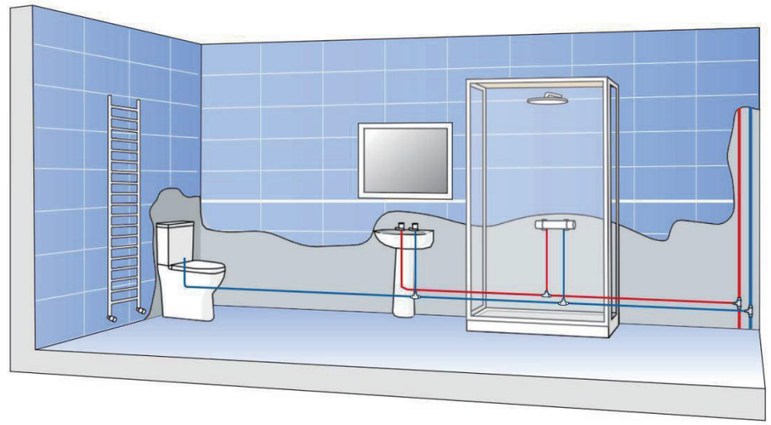


Installation Examples

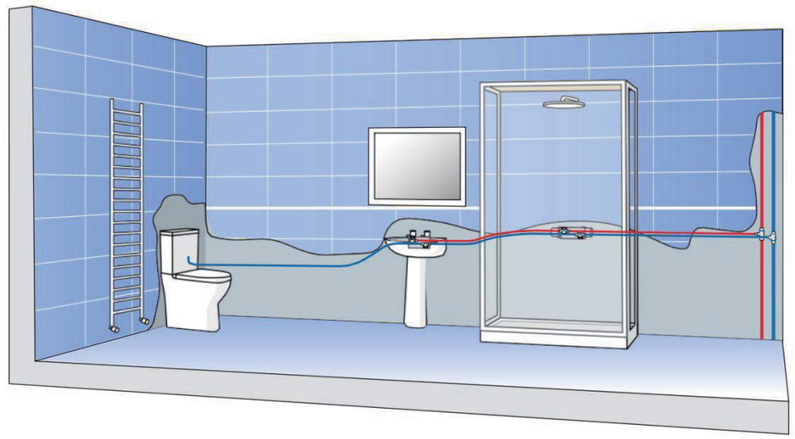
Distribution with manifold



Distribution with 'T' fitting



Series distribution in a wall



Distributed Presssure Drops - Water at 10°C

DN 16x2			DN 20x2			DN 25x2			DN 32x3		
G (l/h)	V (m/s)	Dp/m (Pa/m)	G (l/h)	V (m/s)	Dp/m (Pa/m)	G (l/h)	V (m/s)	Dp/m (Pa/m)	G (l/h)	V (m/s)	Dp/m (Pa/m)
120	0.29	158	150	0.21	60	400	0.35	115	800	0.42	111
130	0.32	182	170	0.23	74	440	0.39	136	860	0.45	126
140	0.34	208	190	0.26	90	480	0.42	158	920	0.48	142
150	0.37	234	210	0.29	108	520	0.46	182	980	0.51	159
160	0.39	262	230	0.32	126	560	0.50	207	1040	0.54	176
170	0.42	291	250	0.35	146	600	0.53	234	1100	0.58	194
180	0.44	322	270	0.37	167	640	0.57	262	1160	0.61	213
190	0.47	354	290	0.40	189	680	0.60	291	1220	0.64	233
200	0.49	387	310	0.43	213	720	0.64	322	1280	0.67	253
210	0.52	422	330	0.46	237	760	0.67	354	1340	0.70	275
220	0.54	458	350	0.48	263	800	0.71	387	1400	0.73	296
230	0.56	495	370	0.51	290	840	0.74	422	1460	0.76	319
240	0.59	533	390	0.54	318	880	0.78	457	1520	0.80	342
250	0.61	572	410	0.57	347	920	0.81	494	1580	0.83	366
260	0.64	613	430	0.59	377	960	0.85	533	1640	0.86	391
270	0.66	655	450	0.62	408	1000	0.88	572	1700	0.89	416
280	0.69	698	470	0.65	441	1040	0.92	613	1760	0.92	443
290	0.71	742	490	0.68	474	1080	0.95	655	1820	0.95	469
300	0.74	788	510	0.70	508	1120	0.99	698	1880	0.98	497
310	0.76	834	530	0.73	544	1160	1.03	742	1940	1.01	525
320	0.79	882	550	0.76	580	1200	1.06	787	2000	1.05	553
330	0.81	930	570	0.79	617	1240	1.10	834	2060	1.08	583
340	0.84	980	590	0.82	656	1280	1.13	881	2120	1.11	613
350	0.86	1031	610	0.84	695	1320	1.17	930	2180	1.14	644
360	0.88	1084	630	0.87	736	1360	1.20	980	2240	1.17	675
370	0.91	1137	650	0.90	777	1400	1.24	1031	2300	1.20	707
380	0.93	1191	670	0.93	819	1440	1.27	1083	2360	1.23	739
390	0.96	1246	690	0.95	863	1480	1.31	1136	2420	1.27	773
400	0.98	1303	710	0.98	907	1520	1.34	1191	2480	1.30	806
410	1.01	1360	730	1.01	952	1560	1.38	1246	2540	1.33	841
420	1.03	1419	750	1.04	998	1600	1.41	1302	2600	1.36	876
430	1.06	1479	770	1.06	1045	1640	1.45	1360	2660	1.39	912
440	1.08	1539	790	1.09	1093	1680	1.49	1418	2720	1.42	948
450	1.11	1601	810	1.12	1142	1720	1.52	1478	2780	1.45	985
460	1.13	1664	830	1.15	1192	1760	1.56	1539	2840	1.49	1022
470	1.15	1728	850	1.17	1243	1800	1.59	1600	2900	1.52	1060
480	1.18	1793	870	1.20	1294	1840	1.63	1663	2960	1.55	1099
490	1.20	1858	890	1.23	1347	1880	1.66	1727	3020	1.58	1138
500	1.23	1925	910	1.26	1400	1920	1.70	1792	3080	1.61	1178
510	1.25	1993	930	1.28	1454	1960	1.73	1858	3140	1.64	1219
520	1.28	2062	950	1.31	1510	2000	1.77	1925	3200	1.67	1260
530	1.30	2132	970	1.34	1566	2040	1.80	1992	3260	1.71	1301
540	1.33	2203	990	1.37	1623	2080	1.84	2061	3320	1.74	1344
550	1.35	2275	1010	1.40	1680	2120	1.87	2131	3380	1.77	1386
560	1.38	2348	1030	1.42	1739	2160	1.91	2202	3440	1.80	1430
570	1.40	2422	1050	1.45	1799	2200	1.95	2274	3500	1.83	1474
580	1.42	2496	1070	1.48	1859	2240	1.98	2347	3560	1.86	1518
590	1.45	2572	1090	1.51	1920	2280	2.02	2421	3620	1.89	1563
600	1.47	2649	1110	1.53	1982	2320	2.05	2495	3680	1.93	1609
610	1.50	2727	1130	1.56	2045	2360	2.09	2571	3740	1.96	1655
620	1.52	2805	1150	1.59	2109	2400	2.12	2648	3800	1.99	1702

Distributed Presssure Drops - Water at 50°C

DN 16x2			DN 20x2			DN 25x2			DN 32x3		
G (l/h)	V (m/s)	Dp/m (Pa/m)	G (l/h)	V (m/s)	Dp/m (Pa/m)	G (l/h)	V (m/s)	Dp/m (Pa/m)	G (l/h)	V (m/s)	Dp/m (Pa/m)
120	0.29	126	150	0.21	47	400	0.35	91	800	0.42	88
130	0.32	145	170	0.23	59	440	0.39	108	860	0.45	100
140	0.34	165	190	0.26	72	480	0.42	126	920	0.48	113
150	0.37	186	210	0.29	85	520	0.46	145	980	0.51	126
160	0.39	208	230	0.32	100	560	0.50	165	1040	0.54	140
170	0.42	231	250	0.35	116	600	0.53	186	1100	0.58	154
180	0.44	256	270	0.37	133	640	0.57	208	1160	0.61	169
190	0.47	281	290	0.40	150	680	0.60	231	1220	0.64	185
200	0.49	308	310	0.43	169	720	0.64	256	1280	0.67	201
210	0.52	335	330	0.46	188	760	0.67	281	1340	0.70	218
220	0.54	363	350	0.48	209	800	0.71	307	1400	0.73	235
230	0.56	393	370	0.51	230	840	0.74	335	1460	0.76	253
240	0.59	423	390	0.54	252	880	0.78	363	1520	0.80	272
250	0.61	454	410	0.57	275	920	0.81	393	1580	0.83	291
260	0.64	487	430	0.59	299	960	0.85	423	1640	0.86	311
270	0.66	520	450	0.62	324	1000	0.88	454	1700	0.89	331
280	0.69	554	470	0.65	350	1040	0.92	487	1760	0.92	351
290	0.71	589	490	0.68	376	1080	0.95	520	1820	0.95	373
300	0.74	625	510	0.70	404	1120	0.99	554	1880	0.98	394
310	0.76	662	530	0.73	432	1160	1.03	589	1940	1.01	417
320	0.79	700	550	0.76	461	1200	1.06	625	2000	1.05	439
330	0.81	739	570	0.79	490	1240	1.10	662	2060	1.08	463
340	0.84	778	590	0.82	521	1280	1.13	700	2120	1.11	487
350	0.86	819	610	0.84	552	1320	1.17	739	2180	1.14	511
360	0.88	860	630	0.87	584	1360	1.20	778	2240	1.17	536
370	0.91	903	650	0.90	617	1400	1.24	819	2300	1.20	561
380	0.93	946	670	0.93	651	1440	1.27	860	2360	1.23	587
390	0.96	990	690	0.95	685	1480	1.31	902	2420	1.27	613
400	0.98	1035	710	0.98	720	1520	1.34	945	2480	1.30	640
410	1.01	1080	730	1.01	756	1560	1.38	989	2540	1.33	668
420	1.03	1127	750	1.04	793	1600	1.41	1034	2600	1.36	696
430	1.06	1174	770	1.06	830	1640	1.45	1080	2660	1.39	724
440	1.08	1222	790	1.09	868	1680	1.49	1126	2720	1.42	753
450	1.11	1271	810	1.12	907	1720	1.52	1174	2780	1.45	782
460	1.13	1321	830	1.15	946	1760	1.56	1222	2840	1.49	812
470	1.15	1372	850	1.17	987	1800	1.59	1271	2900	1.52	842
480	1.18	1423	870	1.20	1028	1840	1.63	1321	2960	1.55	873
490	1.20	1476	890	1.23	1069	1880	1.66	1371	3020	1.58	904
500	1.23	1529	910	1.26	1112	1920	1.70	1423	3080	1.61	936
510	1.25	1583	930	1.28	1155	1960	1.73	1475	3140	1.64	968
520	1.28	1637	950	1.31	1199	2000	1.77	1528	3200	1.67	1000
530	1.30	1693	970	1.34	1243	2040	1.80	1582	3260	1.71	1033
540	1.33	1749	990	1.37	1288	2080	1.84	1637	3320	1.74	1067
550	1.35	1806	1010	1.40	1334	2120	1.87	1692	3380	1.77	1101
560	1.38	1864	1030	1.42	1381	2160	1.91	1748	3440	1.80	1135
570	1.40	1923	1050	1.45	1428	2200	1.95	1805	3500	1.83	1170
580	1.42	1982	1070	1.48	1476	2240	1.98	1863	3560	1.86	1205
590	1.45	2042	1090	1.51	1525	2280	2.02	1922	3620	1.89	1241
600	1.47	2103	1110	1.53	1574	2320	2.05	1981	3680	1.93	1277
610	1.50	2165	1130	1.56	1624	2360	2.09	2041	3740	1.96	1314
620	1.52	2227	1150	1.59	1675	2400	2.12	2102	3800	1.99	1351

Distributed Presssure Drops - Water at 80°C

DN 16x2			DN 20x2			DN 25x2			DN 32x3		
G (l/h)	V (m/s)	Dp/m (Pa/m)	G (l/h)	V (m/s)	Dp/m (Pa/m)	G (l/h)	V (m/s)	Dp/m (Pa/m)	G (l/h)	V (m/s)	Dp/m (Pa/m)
120	0.29	117	150	0.21	44	400	0.35	85	800	0.42	82
130	0.32	135	170	0.23	55	440	0.39	101	860	0.45	94
140	0.34	154	190	0.26	67	480	0.42	117	920	0.48	105
150	0.37	173	210	0.29	80	520	0.46	135	980	0.51	118
160	0.39	194	230	0.32	93	560	0.50	154	1040	0.54	130
170	0.42	216	250	0.35	108	600	0.53	173	1100	0.58	144
180	0.44	238	270	0.37	124	640	0.57	194	1160	0.61	158
190	0.47	262	290	0.40	140	680	0.60	216	1220	0.64	172
200	0.49	287	310	0.43	157	720	0.64	238	1280	0.67	188
210	0.52	312	330	0.46	176	760	0.67	262	1340	0.70	203
220	0.54	339	350	0.48	195	800	0.71	287	1400	0.73	219
230	0.56	366	370	0.51	215	840	0.74	312	1460	0.76	236
240	0.59	394	390	0.54	235	880	0.78	339	1520	0.80	253
250	0.61	424	410	0.57	257	920	0.81	366	1580	0.83	271
260	0.64	454	430	0.59	279	960	0.85	394	1640	0.86	289
270	0.66	485	450	0.62	302	1000	0.88	423	1700	0.89	308
280	0.69	517	470	0.65	326	1040	0.92	454	1760	0.92	328
290	0.71	549	490	0.68	351	1080	0.95	485	1820	0.95	347
300	0.74	583	510	0.70	376	1120	0.99	516	1880	0.98	368
310	0.76	617	530	0.73	402	1160	1.03	549	1940	1.01	388
320	0.79	653	550	0.76	429	1200	1.06	583	2000	1.05	410
330	0.81	689	570	0.79	457	1240	1.10	617	2060	1.08	431
340	0.84	726	590	0.82	485	1280	1.13	652	2120	1.11	454
350	0.86	763	610	0.84	515	1320	1.17	688	2180	1.14	476
360	0.88	802	630	0.87	544	1360	1.20	725	2240	1.17	499
370	0.91	841	650	0.90	575	1400	1.24	763	2300	1.20	523
380	0.93	881	670	0.93	606	1440	1.27	802	2360	1.23	547
390	0.96	922	690	0.95	638	1480	1.31	841	2420	1.27	572
400	0.98	964	710	0.98	671	1520	1.34	881	2480	1.30	597
410	1.01	1007	730	1.01	705	1560	1.38	922	2540	1.33	622
420	1.03	1050	750	1.04	739	1600	1.41	964	2600	1.36	648
430	1.06	1094	770	1.06	774	1640	1.45	1006	2660	1.39	675
440	1.08	1139	790	1.09	809	1680	1.49	1050	2720	1.42	702
450	1.11	1185	810	1.12	845	1720	1.52	1094	2780	1.45	729
460	1.13	1231	830	1.15	882	1760	1.56	1139	2840	1.49	757
470	1.15	1279	850	1.17	920	1800	1.59	1185	2900	1.52	785
480	1.18	1327	870	1.20	958	1840	1.63	1231	2960	1.55	813
490	1.20	1375	890	1.23	997	1880	1.66	1278	3020	1.58	843
500	1.23	1425	910	1.26	1036	1920	1.70	1326	3080	1.61	872
510	1.25	1475	930	1.28	1076	1960	1.73	1375	3140	1.64	902
520	1.28	1526	950	1.31	1117	2000	1.77	1424	3200	1.67	932
530	1.30	1578	970	1.34	1159	2040	1.80	1475	3260	1.71	963
540	1.33	1630	990	1.37	1201	2080	1.84	1526	3320	1.74	994
550	1.35	1684	1010	1.40	1244	2120	1.87	1577	3380	1.77	1026
560	1.38	1737	1030	1.42	1287	2160	1.91	1630	3440	1.80	1058
570	1.40	1792	1050	1.45	1331	2200	1.95	1683	3500	1.83	1091
580	1.42	1848	1070	1.48	1376	2240	1.98	1737	3560	1.86	1124
590	1.45	1904	1090	1.51	1421	2280	2.02	1791	3620	1.89	1157
600	1.47	1960	1110	1.53	1467	2320	2.05	1847	3680	1.93	1191
610	1.50	2018	1130	1.56	1514	2360	2.09	1903	3740	1.96	1225
620	1.52	2076	1150	1.59	1561	2400	2.12	1960	3800	1.99	1260

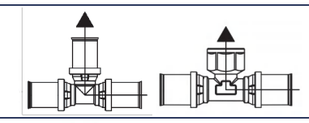
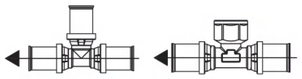
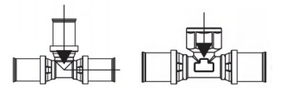
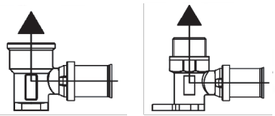
Press Fitting Pressure Drop

To determine localised pressure drops of plants with fittings, it is possible to refer to the following values for the loss coefficient (ξ), which can be obtained from the technical literature below:

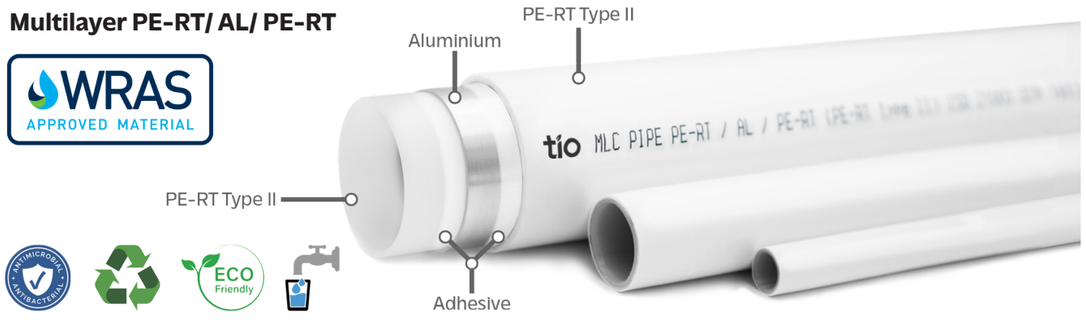
$$p = \xi \rho v^2/2$$

Δp = pressure drop (Pa = 0.01 mbar)
ξ = loss coefficient
ρ = volume mass of the fluid (kg/m³)
v = speed of the fluid (m/s)

Water temperature [°C]	ρ [kg/m³]
20	0.9982
40	0.9922
60	0.99832
80	0.9718

Fitting figure	ξ
	1.8
	1.6
	4.1
	4.1
	4.1
	1.8
	7.6
	4.1

Multilayer PE-RT/ AL/ PE-RT



Tio multilayer pipes cross-link the best qualities of both metal and plastic pipes in one single system. It combines the advantages of aluminium with the corrosion resistance of plastic. The stability of the TIOMLC pipe is ensured by the laser edge welded aluminium. The pipe is built on a 5 layer structure, where the internal and external layers are made of PE-RT type II and the middle layer is made of aluminium and all layers are connected by a special bonding agent.

The pipes internal wall surface is extremely smooth, avoiding corrosion phenomena, limescale or deposits. TIOMLC pipes are flexible and easy to bend. The lightweight of the pipe is also an advantage for its use on wall-mounted installations. TIOMLC pipes can be used for drinking water applications as well as for heating and cooling systems and other industrial applications.

All embedded pipework should be tested in accordance with BSEN 1264-4 prior to the installation of screeds and/or overlay floorings materials.

Applications:

- Heating and Underfloor
- Cooling Systems
- Industrial Facilities
- Snow and Ice Removal Systems
- Surface Heating/Cooling
- Hot and Cold Water Distribution

Dimensions

Description	Coills	Diameter (mm)	Tolerance (mm)	Thickness (mm)	Tolerance (mm)
PERT-Al-PERT	100/200/240/500	16	16 - 16.3	2.0	1.90 - 2.30

Certifications

PE-RT/ Al / PE-RT pipe produced according to WRAS (UK)

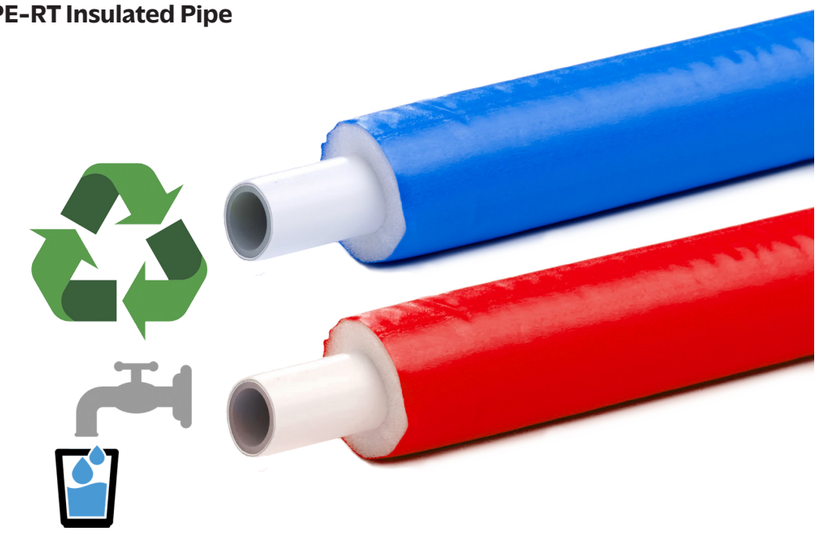
Material:	High temperature resistance polystyrene (PE-RT)
Density:	> 0.941 g/m³
O2 Permeability:	> 0.001 g/m³.d
Working temperature range:	95°C
Maximum temperature:	110°C
Thermal conductivity (60°C):	0.43 W/m°K
Coefficient of linear extension:	0.025 mm/m°K
Tensile strength:	>22 N/mm²
Elongation at break:	>400%
Modulus of elasticity (20°C):	>800 N/mm²

	Temperature	Max pressure
Design pressure according to ISO 21003	20°C	15 bar
	40°C	10 bar
	60°C	8 bar
	70°C	7 bar

Resistance to internal pressure	40 bar (20°C, h)
	40 bar (20°C, h)
	40 bar (20°C, h)
	40 bar (20°C, h)

Product Code	Product Description	Dimensions
TIOMLC0001	PE-RT / Alu / PE-RT multilayer pipe	16 x 2mm - 100m coil
TIOMLC0002	PE-RT / Alu / PE-RT multilayer pipe	16 x 2mm - 240m coil
TIOMLC0003	PE-RT / Alu / PE-RT multilayer pipe	16 x 2mm - 500m coil
TIOMLC0004	PE-RT / Alu / PE-RT multilayer pipe	16 x 2mm - 200m coil
TIOMLC2020	PE-RT / Alu / PE-RT multilayer pipe	20 x 2mm - 50m coil
TIOMLC2525	PE-RT / Alu / PE-RT multilayer pipe	25 x 2.5mm - 50m coil
TIOMLC3230	PE-RT / Alu / PE-RT multilayer pipe	32 x 3mm - 50m coil

Multilayer PE-RT/ AL/ PE-RT Insulated Pipe



The insulated pipe is made of polyethylene (PE) foam, complying with EN ISO 14313 regulations. This foam provides excellent protection and exceptional resistance against abrasion. In addition, it is light, flexible, and has a high thermal insulation capacity, which makes it ideal for various applications.

Tio multilayer pipes cross-link the best qualities of both metal and plastic pipes in one single system. It combines the advantages of aluminium with the corrosion resistance of plastic. The stability of the TIOMPI pipe is ensured by the laser edge welded aluminium. The pipe is built on a 5 layer structure, where the internal and external layers are made of PE-RT type II and the middle layer is made of aluminium and all layers are connected by a special bonding agent.

The pipes internal wall surface is extremely smooth, avoiding corrosion phenomena, limescale or deposits. TIOMPI pipes are flexible and easy to bend. The lightweight of the pipe is also an advantage for its use on wall-mounted installations. TIOMPI pipes can be used for drinking water applications as well as for heating and cooling systems and other industrial applications.

All embedded pipework should be tested in accordance with BSEN 1264-4 prior to the installation of screeds and/or overlay floorings materials.

Applications:

- Heating and Underfloor
- Cooling Systems
- Industrial Fascilities
- Snow and Ice Removal Systems
- Surface Heating/Cooling
- Hot and Cold Water Distribution

Product Code	Product Description	Dimensions
TIOMPI1602-B	PE-RT / Alu / PE-RT blue insulated pipe	16 x 2mm - 100m coil
TIOMPI1602-R	PE-RT / Alu / PE-RT red insulated pipe	16 x 2mm - 100m coil
TIOMPI2002-B	PE-RT / Alu / PE-RT blue insulated pipe	20 x 2mm - 50m coil
TIOMPI2002-R	PE-RT / Alu / PE-RT red insulated pipe	20 x 2mm - 50m coil
TIOMPI2525-B	PE-RT / Alu / PE-RT blue insulated pipe	25 x 2.5mm - 50m coil
TIOMPI2525-R	PE-RT / Alu / PE-RT red insulated pipe	25 x 2.5mm - 50m coil
TIOMPI2630-B	PE-RT / Alu / PE-RT blue insulated pipe	26 x 3.0mm - 50m coil
TIOMPI2630-R	PE-RT / Alu / PE-RT red insulated pipe	26 x 3.0mm - 50m coil
TIOMPI3203-B	PE-RT / Alu / PE-RT blue insulated pipe	32 x 3mm - 25m coil
TIOMPI3203-G	PE-RT / Alu / PE-RT grey insulated pipe	32 x 3mm - 25m coil
TIOMPI3203-R	PE-RT / Alu / PE-RT red insulated pipe	32 x 3mm - 25m coil

Products for the built environment

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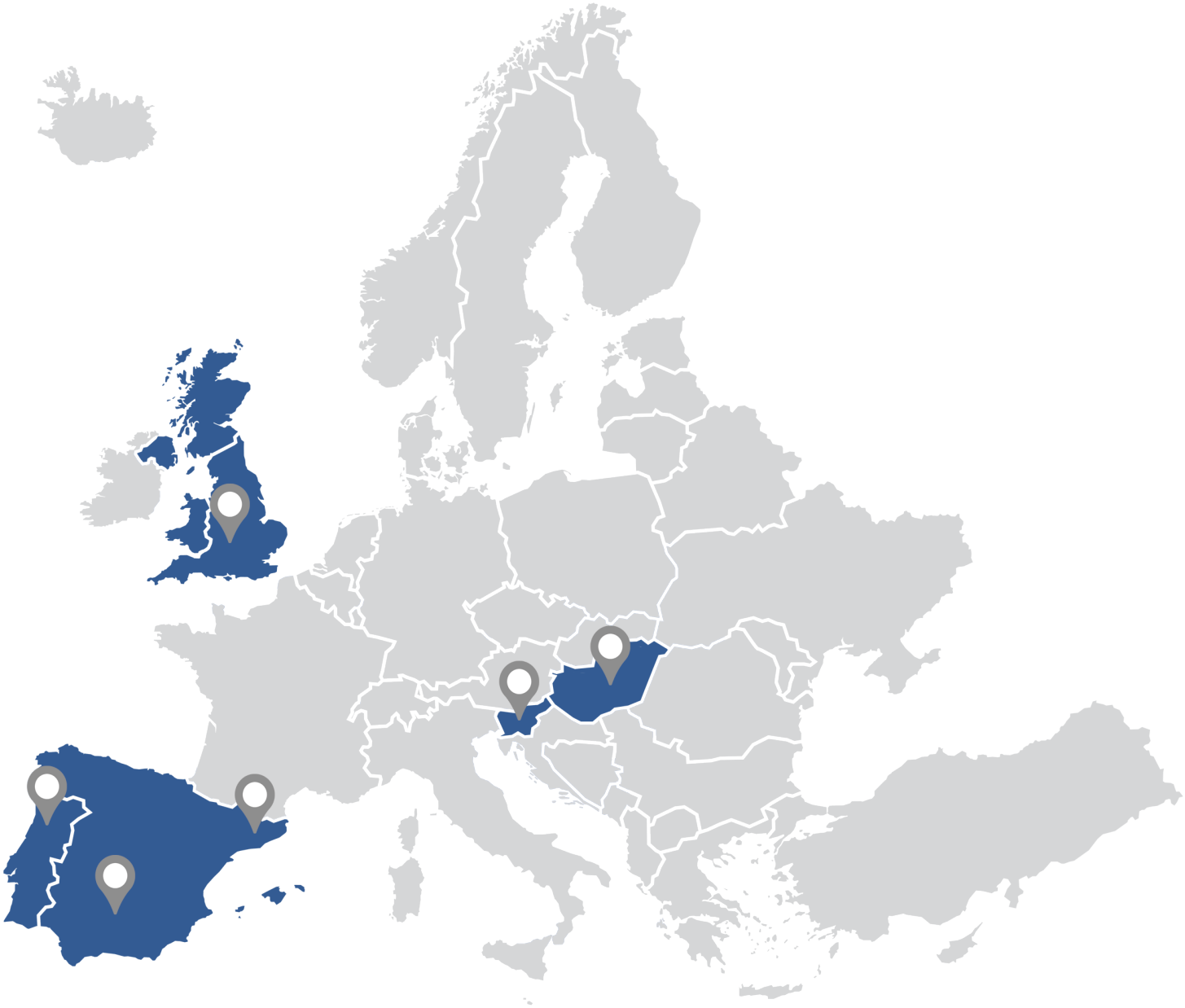

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